



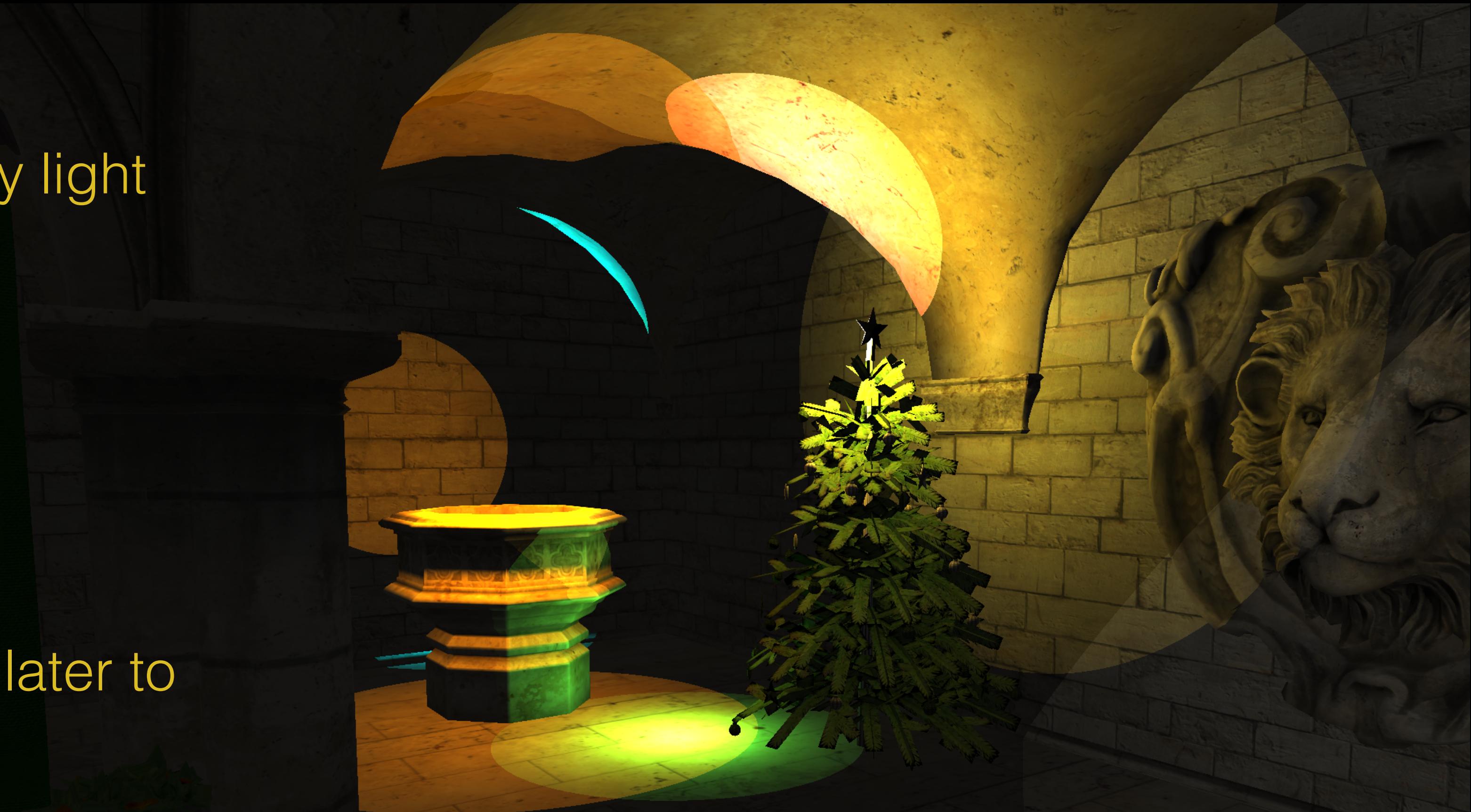
Light Indexed Deferred Rendering

Yanni Coroneos

First by Damian Trebilco

Rendering in Linear Time

- Forward Rendering:
 - Render every object for every light
 - $O(\text{objects} * \text{lights})$ <-SLOW
- Light Indexed Deferred
 - Render light map then use it later to shade every object
 - $O(\text{lights}) + O(\text{objects})$ <-Much Better



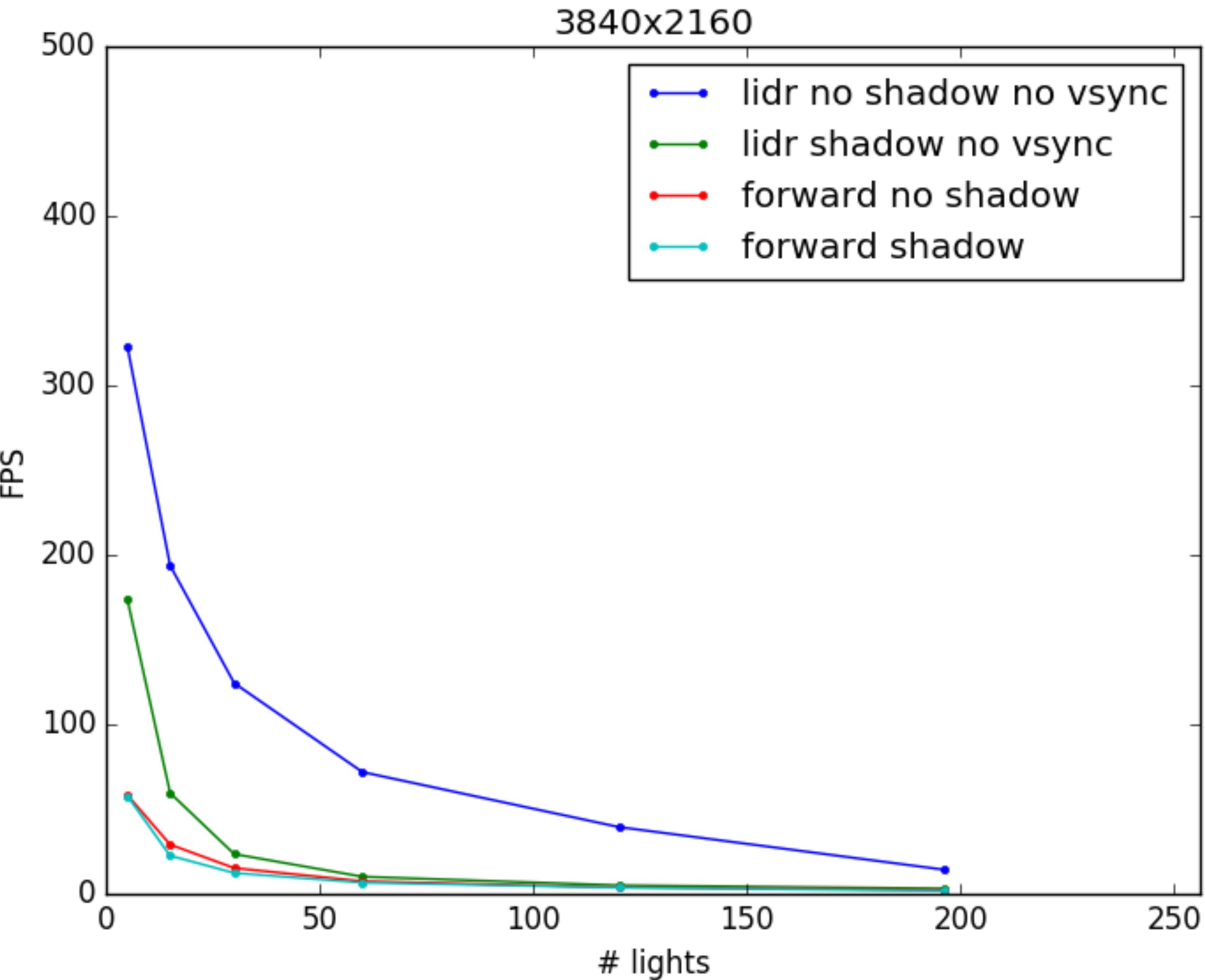
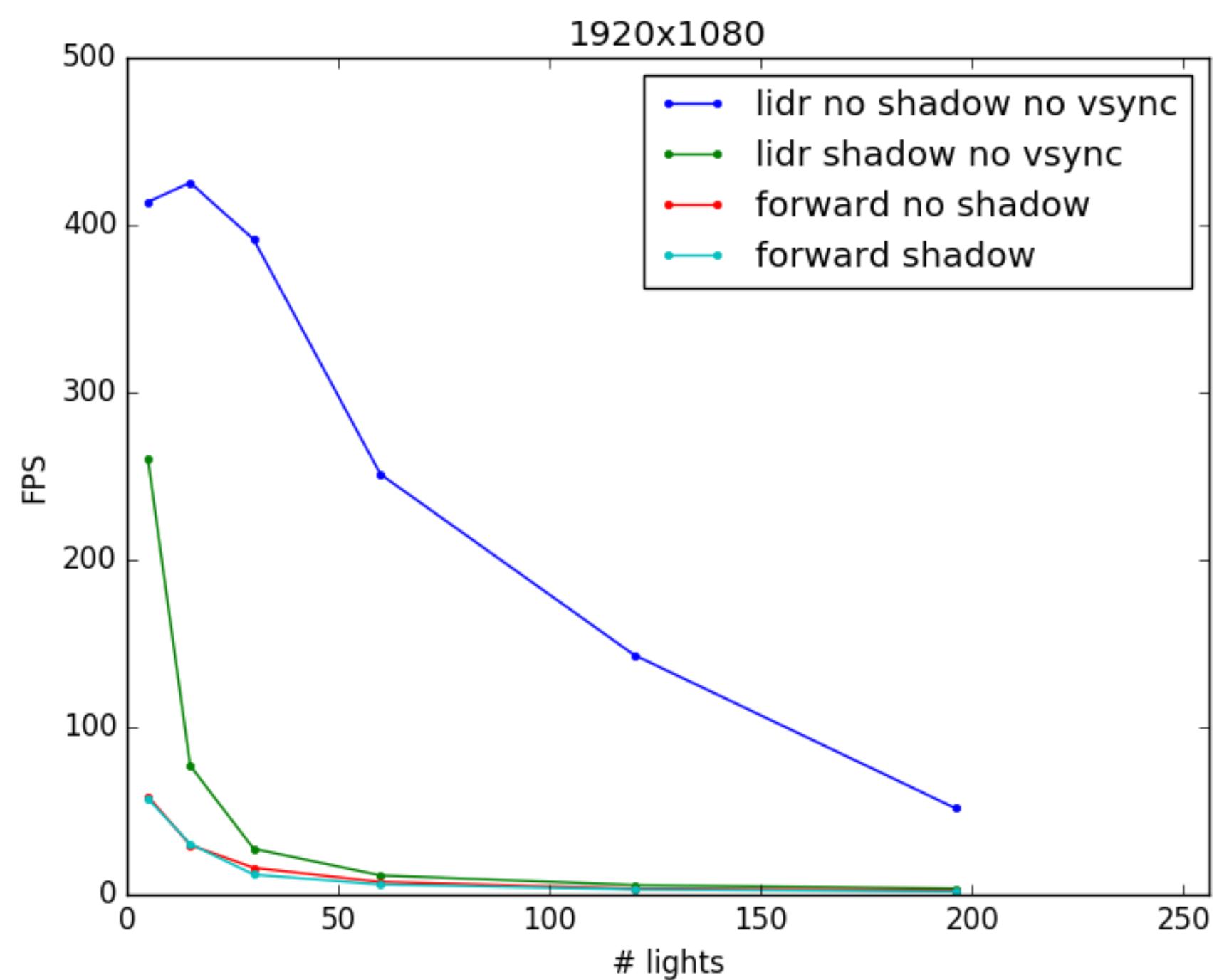
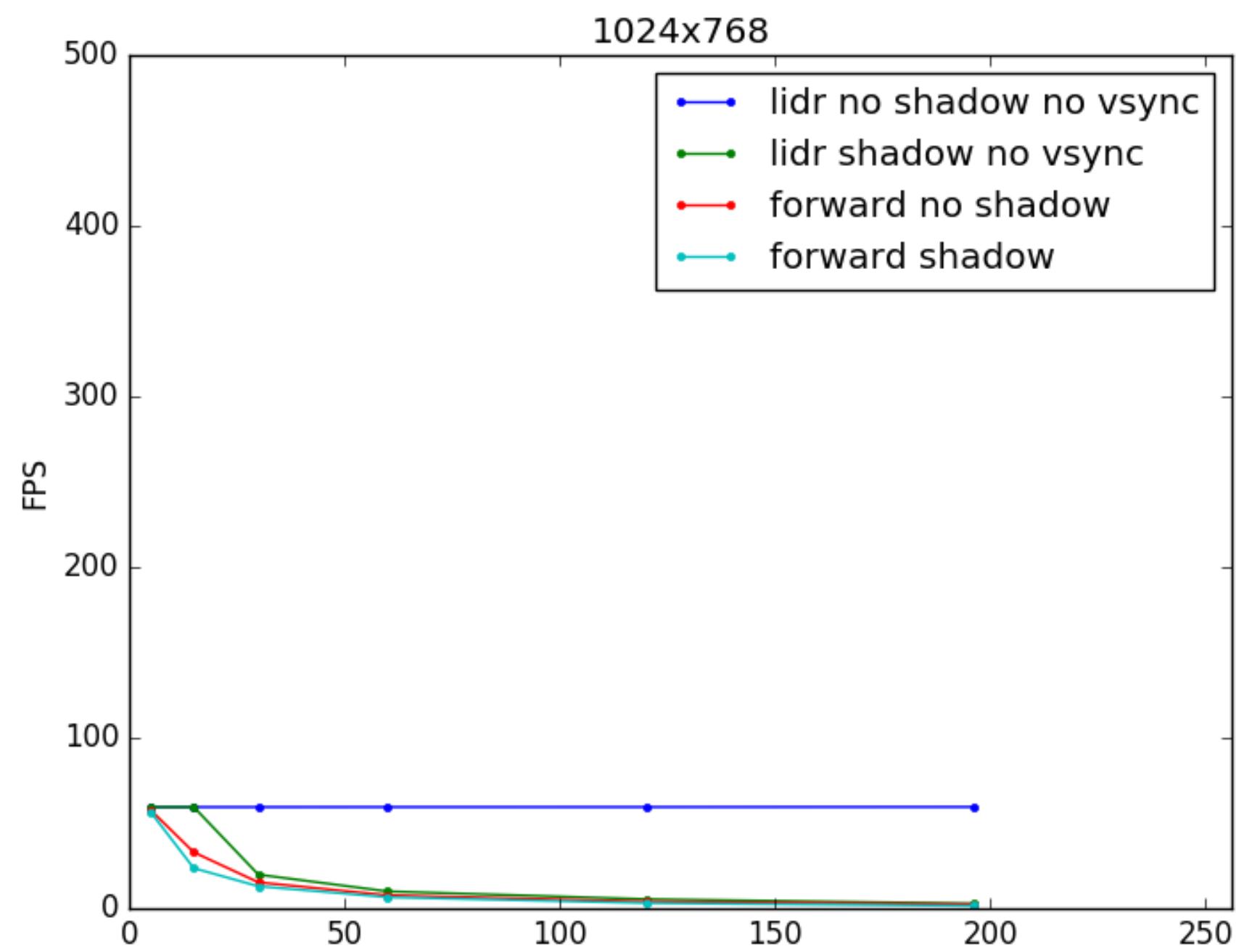
Overview

1. Assign each light an index between 0 and 255
2. Render depth pre-pass
3. Figure out which fragments are hit by each light using implicit light volumes and generate a “light map”
4. Pack light properties into 1D textures
5. Draw geometry in a forward pass and use the light map to find which light hit the fragment. Then use the indices to look up properties from the textures.



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- Read the paper**
<https://github.com/ycoroneos/LightDraw>



Video

- Things I didn't talk about
 - Game engine
 - Bit packing procedure
 - Memory advantages of LIDR
 - How I benchmarked / interpreted results
 - Comparison to other deferred rendering techniques